

State of the European Renewable Energy Market

H2 2021 Market Observations and Key Trends for Corporate Buyers



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2021 H2 Key Findings



An Extremely Active Regional Market

The European renewable energy market has seen extremely high level of activity over H2 of 2021 due to increased corporate interest in sourcing low-carbon electricity as well as the unprecedented level of volatility experienced across all European wholesale power markets.



Carbon Prices are Responding to EU Decarbonisation Target

Carbon prices, which are also rising, have become central to European wholesale power market development as well as to the broader decarbonisation strategy of the EU and UK.



Greater Availability of Structures for Corporate PPAs

As the European corporate PPA market matures, an increased number of options are available to companies in terms of how to structure their PPA to meet their unique environmental, operational, and risk management requirements.



Sustained Growth for Solar

Solar continues to dominate in terms of bids and projects received, though concerns of grid saturation as well as local opposition are beginning to emerge in some Southern European markets.



Guarantee of Origin (GO) Volatility and Business

Throughout H2 of 2021, we've seen GO pricing consistently increase, with prices per MWh rising far above H1 2021 and virtually all of 2020. August to September witnessed the highest price increase all year, spiking around 70% in the span of one month.



Supply Chain Engagement

Individual organizations and entire industries are seeking solutions to collaborate with suppliers on decarbonisation programs in order to address Scope 3 emissions.

Mega Trends to Watch

Volatility and Complexity

Extreme price volatility is causing a number of challenges for energy buyers in Europe. Wholesale energy prices have skyrocketed, hitting all-time highs throughout the second half of 2021. At the same time, regulatory environments in many European markets have been dynamic and unpredictable, adding an additional layer of complexity.

Competition

High prices on electricity bills due to volatility are posing substantial economic risks to companies throughout Europe. This is pushing many to consider different strategies for managing price and risk. Combined with rapid uptake of corporate decarbonisation targets, we're seeing a considerable increase in first-time entrants into the corporate PPA market, creating a more competitive landscape for all buyers.

Convergence

Volatility and competition have combined to accelerate the trend of convergence in energy supply, sustainability, and risk management. Market forces put a premium on the importance of a holistically managed portfolio of long-term and near-term traditional supply and renewable supply, with close ties to sustainability goals and risk mitigation strategies.

If price fluctuations and uncertainty of the past six months have taught us anything – it's to expect the unexpected. A trusted advisor will help your company sort through the complexity and align your energy, sustainability, and risk management strategies.

[Contact our experts today](#) to get started.



Summary of H2 YTD Data

The H2 YTD data set which informs this report considers corporate request for proposal (RFP) responses that have been gathered between June and November 2021. It represents over 1,200 renewable energy offers across Europe, submitted by more than 50 solution providers across 11 countries, resulting in a strong overview of the European renewable energy market for corporate buyers.

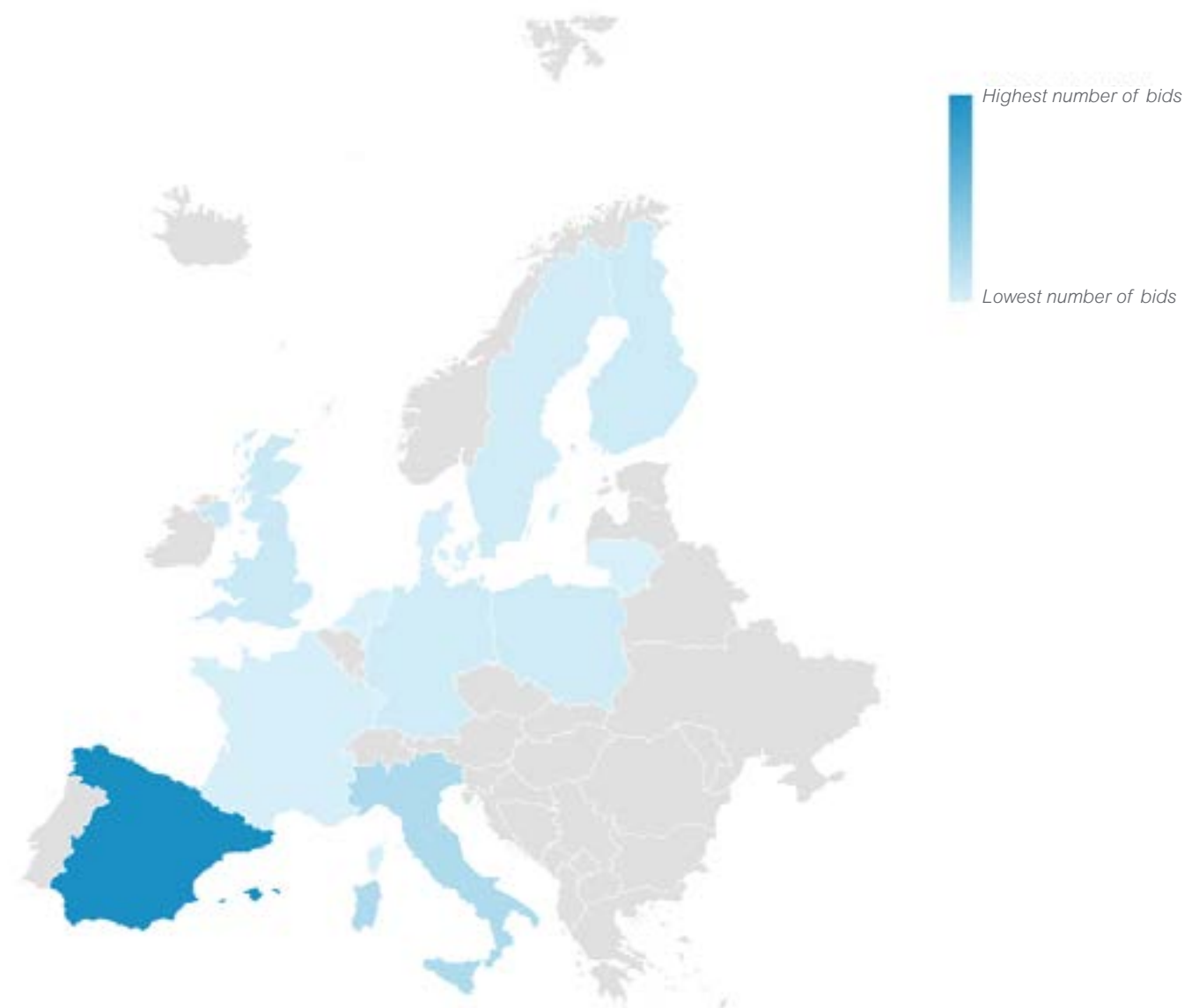


Figure 1: H2 Country Bid Distribution

Market Trends

Technology

Our data confirms the continued growth of solar across Europe, representing 78% of the H2 2021 bids. The majority of solar offers still come from Southern European markets, but 9 of 11 countries in the H2 data set had bids for solar projects.

However, the growth of solar is creating concerns around grid saturation in some markets (e.g. Spain and Italy). In addition, growing local opposition to solar farms due to potential impact on agricultural area and landscape points to potential future conflict over land management and biodiversity considerations for renewable development.

Recent global supply chain issues have also been affecting the availability of solar and wind projects over last few months.

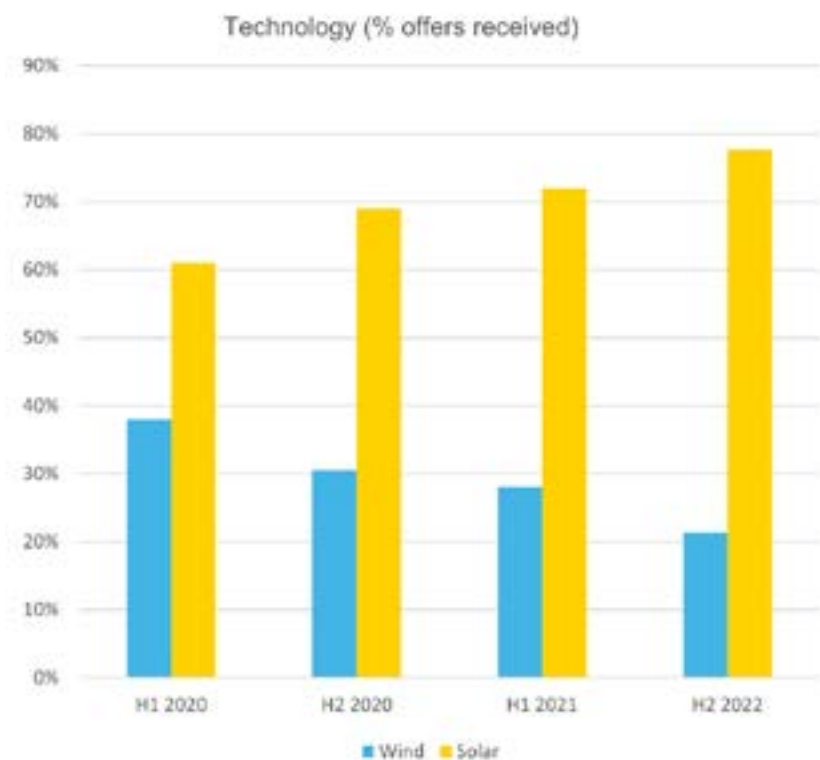


Figure 2: Change over time in renewable energy technologies



Price Structure

The offer of alternative price structures has continued to grow throughout 2021 with a wider variety of products available across European markets. In H2 we saw a 6% increase in alternative structures over the [H1 2021 data set](#), and a 13% increase over the [H2 2020 data set](#).

In some of the most active and liquid markets, such as Spain, bids with alternative price structures represented almost half of the bids received. Additionally, we have observed greater availability and offer of baseload products.

This increased variety of price and profile structures allows corporates more flexibility in structuring PPAs to meet their specific organisational and operational requirements and provides better risk management options.

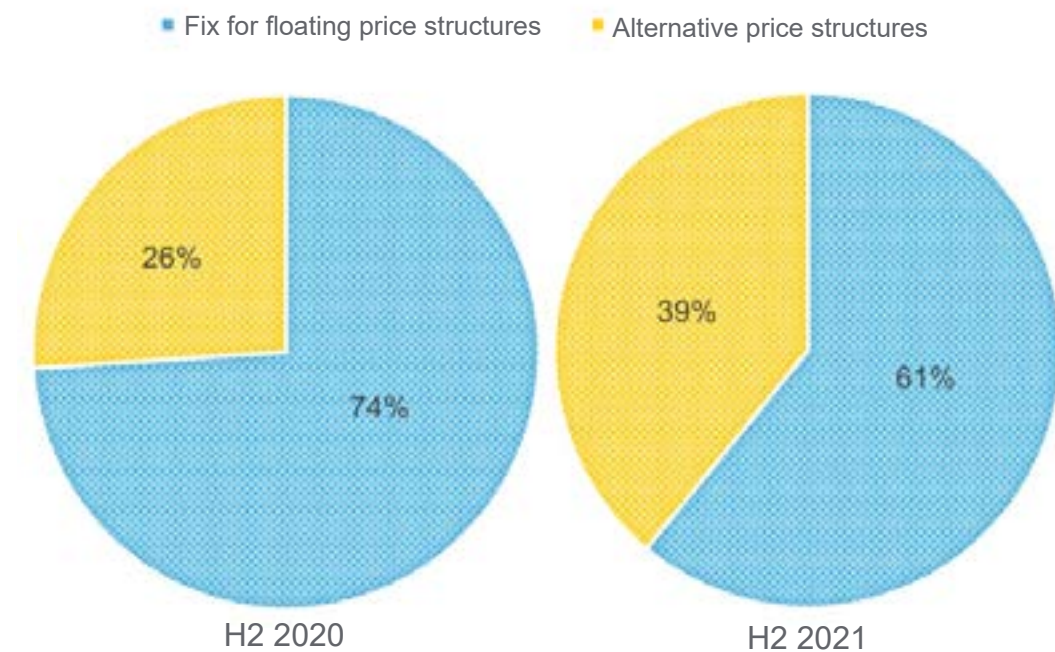


Figure 3: PPA price structures offered (H2 2020 vs. H2 2021)



Market Trends

Carbon Price

EU ETS carbon prices rose aggressively from the end of 2020, continuing through the end of 2021. The market reached all-time highs, peaking at close to €79/t in December. The UK ETS launched following Brexit, and despite some legislative differences, prices have largely followed its European counterpart. The EU’s “Fit for 55” package, released in mid-July, drove the bullishness we see in the EU ETS, which is one of the main tools to reach the ambitious 55% decarbonisation goal. Looking forward, the short-term carbon price outlook is neutral, with falling gas prices and sunny and windy weather decreasing the need to burn fossil fuels, reducing demand for EUAs. In the long-term, however, prices are expected to rise given proposed legislative changes that will tighten the supply-demand balance.

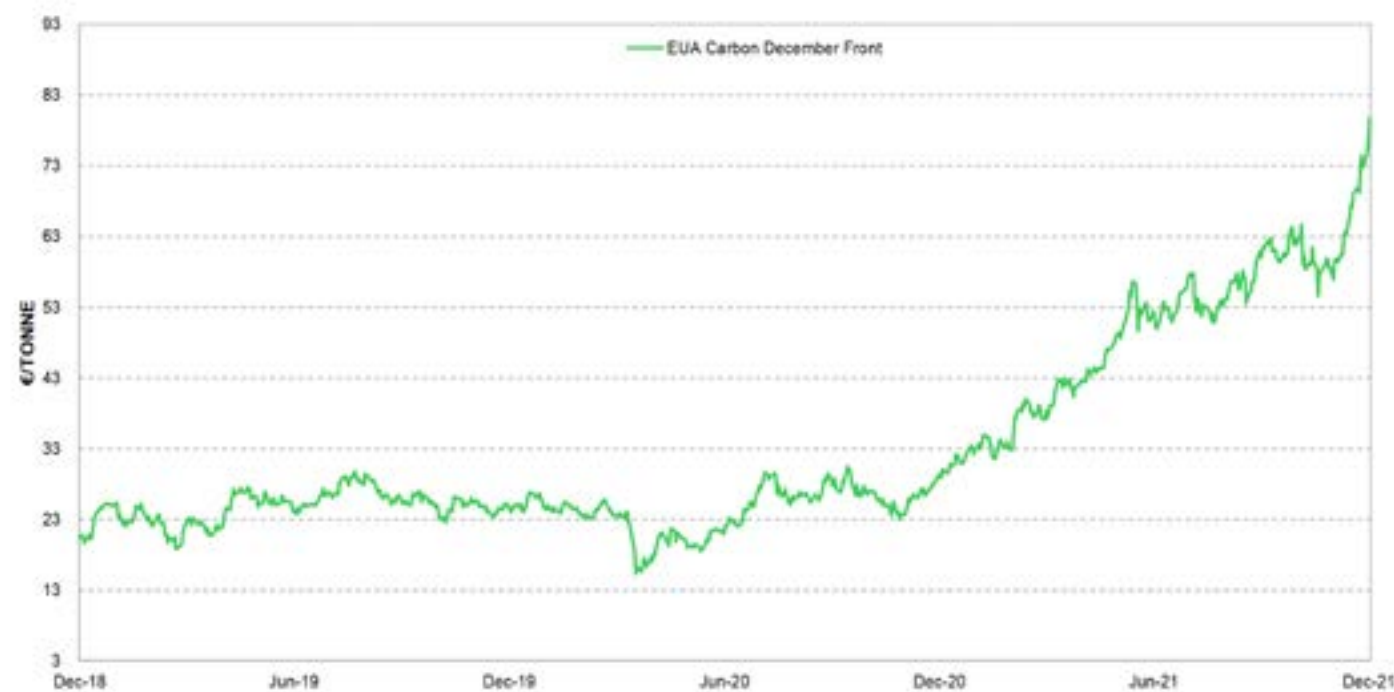
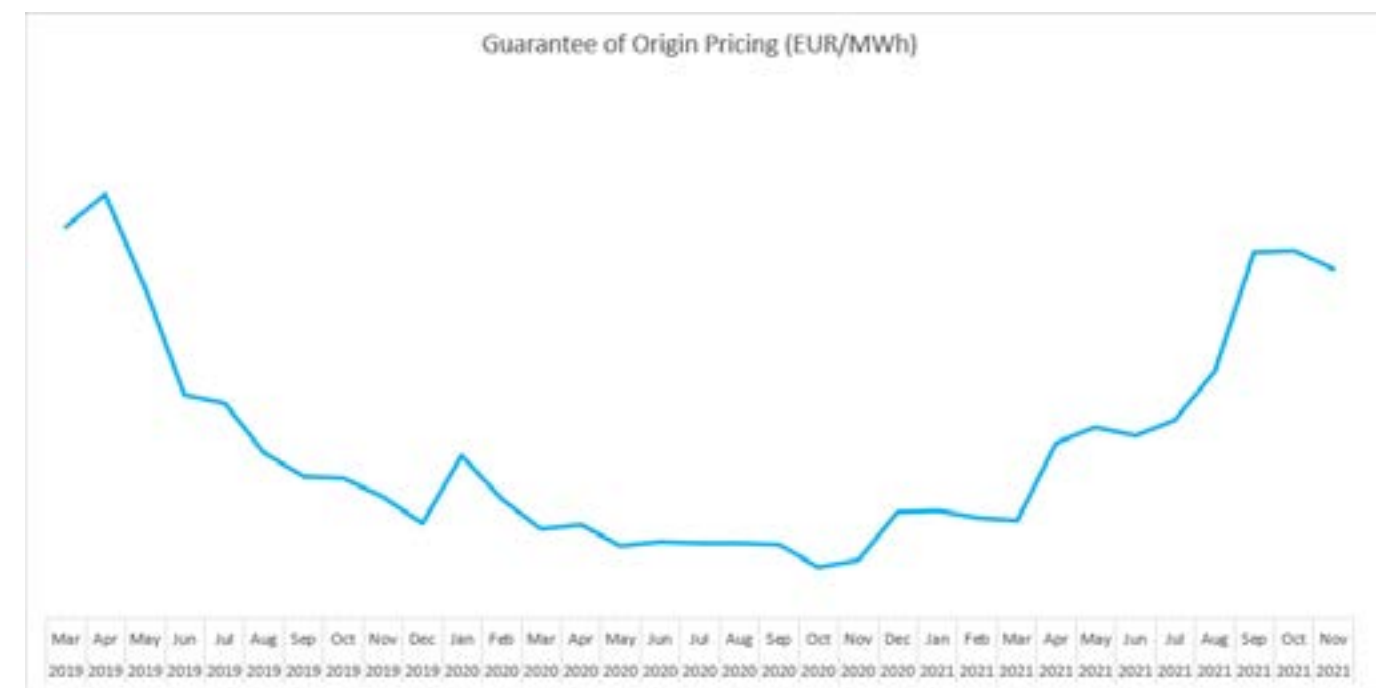


Figure 4: EUA Carbon Prices through December 2021

Guarantees of Origin (GOs)

GO prices in H2 2021 (YTD) have increased significantly over H1 and all of 2020. High prices have been a result of the combined effects of lower wind conditions and hydro reservoirs in Europe limiting supply and an imbalance of more buyers than sellers entering the market. In July, the number of transactions and registered volumes decreased as market players went on holiday, sending prices up across the board. But as buyers and sellers returned in August, the number of transactions and registered volumes increased by 147% and 106% respectively compared to July. In the final quarter of 2021, prices are bullish week after week. We expect market activity to continue to grow through end of year, with increased interest for current year and for 2022 and onwards GO vintages.



Note: The data displayed in this graph was calculated based on direct quotes received from GO providers in the European market, not from the RFP database.

Figure 5: Guarantee of Origin price trend per MWh

Local Market Spotlight: Spain

Highly Popular and Economical PPA Market

Spain's outstanding natural resources for both onshore wind and solar power make it one of the most popular markets for PPAs today. Strong economics and many developers with robust project pipelines mean that this market is maturing and continues to be an interesting one for corporates to consider.

A Tale of Regulatory Ambiguity

A contentious Royal Decree published by the Spanish government in H2 2021 sought to require all energy producers using certain technologies (hydro, nuclear, wind, and solar) to return part of their revenue to the government, as they were deemed to be overcompensated through windfall revenues.

With no distinction for generators with bilateral contracts, many electricity companies threatened to pull investments in renewable projects, creating large amounts of uncertainty in the market.

Legislative Clarity Paves the Way for PPAs

After much debate, a new Royal Decree exempted these producers with bilateral contracts with fixed prices, returning confidence to investors and the PPA market.

Rewards That Outweigh Market Risks

Though government auctions and legislative changes have created even more volatility in Spain than the European-wide spiking market prices, it's still an extremely promising and active market for corporate PPA transactions.



Fátima Sanchez leads the Cleantech Operation team in EMEA which focuses on providing client services and solutions on renewable energy and sustainable energy strategies including, but not limited to, DPPAs and VPPAs.

It is important to note that participation in these markets can also expose corporates to risk. Interested in exploring Spain's PPA market? [Contact our local market experts.](#)



Past performance is not indicative of future results. Hypothetical performance results have many inherent limitations. No representation is being made that any program will or is likely to achieve profits or losses similar to those shown. Swaps, futures, and options trading involve significant risk of loss and may not be suitable for everyone. Therefore, carefully consider whether such trading is suitable for you in light of your financial condition.



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Local Market to Watch: Germany

Big Corporates with Big Goals



Germany is home to many large companies with ambitious targets for renewable energy adoption. Paired with the value these companies place on local renewable solutions and stories, the German market for PPAs is seeing a lot of interest.

Coal and Nuclear Phase Out Creates Power Supply Gap



Germany's plans to phase out coal and nuclear are part of its efforts to drive a clean energy transition and reduce greenhouse gas emissions by 65% by 2030. The withdrawal of these power sources means there is an opening for renewables to fill the gap and replace this capacity.

Government Auctions Accelerate Renewables



Auctions being held by the German government support the build-out of renewables, with electricity companies offering huge volumes of onshore and offshore wind and solar resources.

Limited Projects but Pushing for Solutions



To meet Germany's carbon neutrality goal, the governmental auctions are taking up many projects from the market, leaving a reduced number of renewable projects available for corporate offtakers. However, we expect to see a hotspot forming for market growth in the medium-term due to high corporate demand. As this demand grows and competition for PPAs in all markets intensifies, we predict to see some companies willing to explore higher-priced solutions in Germany. There is also great opportunity for [cross-border PPAs](#), with Germany being at the heart of Europe and physically connected to other popular PPA markets.



Peter Heredi helps corporate energy buyers achieve their renewable targets. He conducts financial analysis of offsite and onsite PPA offers, leads relationships with European utilities and renewable energy project developers.

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Case Study

ENERGIZE: 10 Pharmaceutical Companies Launch Program to Advance Supplier Climate Action

Program Overview

Creating life-changing medicines and services requires a lot of energy, much of it used by the value chain.

The Energize program is a collaboration between 10 global pharmaceutical companies to engage hundreds of suppliers in bold climate action and decarbonisation of the pharmaceutical value chain. The program is a first-of-its-kind effort to leverage the scale of a single industry's global supply chain to drive system-level change.

Through education and engagement of pharmaceutical suppliers, the program will give companies who otherwise may not have had the resources or expertise the opportunity to participate in the PPA market. The focus is on suppliers that have energy load in North America and Europe.

Read the [full story](#), watch the [announcement video](#), and read the [letter to suppliers](#).

The Supply Chain Decarbonisation Trend Takes Form

A trend that we've seen entering the renewables space for several years now takes a huge step forward with this new program. The format serves as a template for other industries to replicate, in order to address the elusive Scope 3 category of emissions.

Sustainable supply chains create long-term value, and investors are considering a company's supply chain sustainability and resilience in investment decisions more than ever before. We expect to see the market for similar solutions continue to grow as stakeholder scrutiny remains and companies turn their sights on Scope 3.



Indicative Pricing Overview

Note:

- Price Ranges displayed represent the 25th to 75th percentile of offers across VPPA structures from our H2 2021 YTD data set.
- Prices displayed have been rounded to the nearest decimal.
- Both wind and solar technologies are considered.
- Past performance is not suggestive of future results.
- Prices should be considered in context of the local market.
- See next page for some key observations.



*Price range observed is from the H1 2021 data set
 ** Price range observed is from the H2 2020 data set

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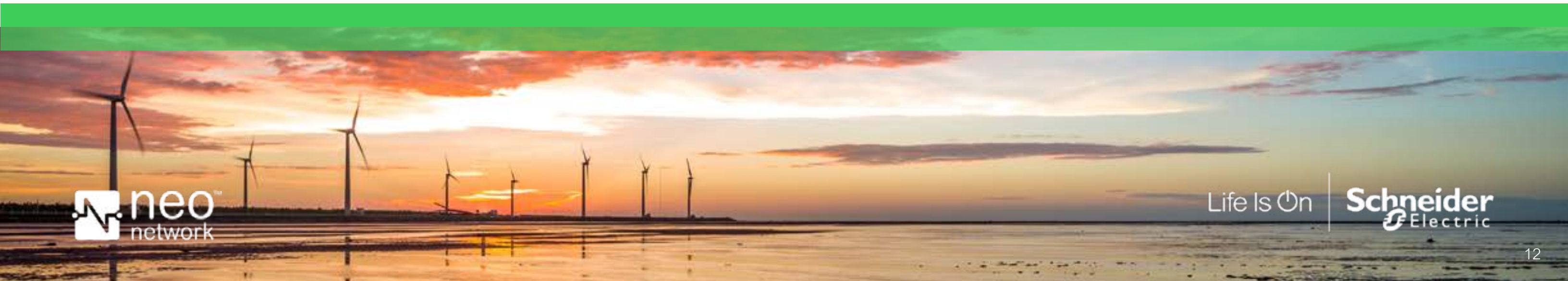
Indicative Pricing Observations



*Price range observed is from the H1 2021 data set
 ** Price range observed is from the H2 2020 data set

- Due to a number of challenges, including wholesale power market volatility, supply chain and shipping issues, increasing CapEx for developers, and overall inflation, PPA prices have increased across all European markets since H1 2021.
- Despite regulatory uncertainty of last few months, Spain is still one of the most attractive markets for corporate PPAs.
- The Nordic markets continue to present interesting opportunities, with a healthy number of bids within the lower end of the price spectrum in H2 2021.
- Despite corporate activity, options for cost-effective and/or additional renewable energy opportunities are still limited in Germany.
- The Polish market has significant limitation in terms of project availability for corporate offtakers.
- Despite its complex permitting processes, the Italian market presents a good level of cost-effective solutions and a healthy pipeline of projects.
- Although the three megatrends (volatility, competition, and convergence) have shaped higher PPA prices across the board, Europe still offers many economically attractive PPA opportunities to increase renewable energy adoption, especially when compared to the wholesale market.

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NEO Network

Uncover renewable energy solutions to accelerate company goals

Renewable energy and clean technology are expanding and creating new, economically viable opportunities for corporate buyers. But the market is complex. Energy and sustainability leaders are faced with the challenge of educating themselves and engaging stakeholders, understanding the global market, and finding the right solutions to meet their goals.

NEO Network Accelerator Membership gives corporate buyers free access to expertise and resources that simplify and accelerate cleantech decision-making.

Market Education. By leveraging our NEO Network of leading solutions providers, members are able to access in-depth country reports and explore wind and solar projects across Europe.

Customized Data. Distilled data, detailed resources, and analytics of our custom applications accelerate progress on global new energy opportunities.

Virtual Community. With over 400 corporate members, NEO Network fosters collaboration amongst like-minded organizations to help accelerate renewable energy opportunities.

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Schneider Electric ESS

Global leader in renewable energy procurement

Schneider Electric Energy & Sustainability Services (ESS) is a pioneering global supplier of renewable energy and clean technology products and services for the commercial, industrial, and institutional (C&I) sectors. Schneider currently manages more than \$30B in energy spend on behalf of its clients annually, and tracks nearly 130 million metric tons of corporate carbon emissions.

Schneider Electric ESS currently has the following PPA activity in Europe:

- 16 markets covered in the PPA process
- 45 recent and current PPA processes
- 830 MW of advised PPAs
- 16,000,000+ MWh of renewable electricity currently under RFP

With experts on the ground in all key markets, Schneider's cleantech team continues to help companies identify optimal solutions to procure renewable electricity in Europe.

Ranked #1 Most Sustainable Company
in the World 2021 by Corporate Knights



perspectives.se.com

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Hypothetical performance results have many inherent limitations, some of which are described below. No representation is being made that any program will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program.

One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or to adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results.

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